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CENTRAL INTELLIGENCE AGENCY

INFORMATION REPORT

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PART II - REPORT

1. Developments - R 10 50X1-HUM

[redacted] the most important work included two surface weapons known as the R 10. and R 14 of which certain details have so far been learnt. [redacted] 50X1-HUM

2. The R 10, a radically modified version of the A4, originally proposed by the Germans, was the subject of Conference at NII 88 in 1947 and 1948. The first conference resulted in a Russian request to continue the study as, by that time, the Germans had not prepared sufficient data for a decision to be made. About one year later in December, 1948, the project study had been completed and the German groups proposals were submitted before the Scientific and Technical Council at NII 88.

The study was accepted and it was confirmed that work was along the right lines and money was allocated for some preliminary necessary experiments, including exhaust gas utilization.

The papers had to be submitted some two months before the Conference and were on the various topics of Ballistics, Aerodynamics, Body Structure, Power Plant, Controls, Ground equipment, Static Calculations. Stability and Control, to a total of some 700 pages. [redacted] In addition to these there were some 200 drawings and a number of demonstration posters. A 1/20 or 1/25 scale model was also manufactured (at OSTASHKOV). It was complete but not workable and was demonstrated at the Conference. 50X1-HUM

The Conference lasted a week and worked in a series of sections covering those parts of the work referred to above. There were a number of Russian experts in these sections among whom were GLUSCHKO and UMANSKIY who discussed the Power Plant. The former criticised [redacted] using combustion chamber exhaust gases for driving the turbine. GLUSCHKO actually said that experiments had been carried out already and were unsuccessful. UMANSKIY supported the proposals, however, and when subsequently these proved successful the Russians working on the test bed were very pleased. [redacted]CHERTOK was the chief representative of the Control Section. 50X1-HUM

3. Performances.

The original proposal (1946-1947) was for a rocket to carry 1 ton (1,000 kg) to a range of 700 or 800 Km but the result of the study was a "calculated guaranteed range of 910 Km." The planned accuracy was 1/1000 defined as 25% rounds in an area 1 Km square at maximum range.

4. Guidance.

The system was essentially a Command system, but the information is at this stage incomplete.

5. Controls.

The control system used a three gyro error unit. The programmed flight and corrections for instability in pitch and yaw were effected wholly

by the gyros while missile displacements from the beam axis were corrected via the same gyro system.

6. Propulsion.

The power plant was a 35 ton thrust motor using liquid oxygen and alcohol and was based upon the normal combustion chamber and the turbo pump of the A4, but with an overall re-design and using a bleed from the exhaust instead of a separate HTP system to drive the fuel pumps.

7. General

The external form of the rocket was taken over from the A4, but with major re-design of the body, and major repositioning of components. The war head was loosely fitted to the front tank and separated from the main body at fuel cut off. The centre part consisted to two enlarged fuel tanks stabilised by excess internal pressure. The rear end of the rocket was "re-designed completely for production reasons." ontrols were placed behind the tanks. This was possible since the cumbersome "HORIZONT" and "VERTIKANT" gyros were now replaced by much smaller units which could be mounted on the rear end of the fuel tank.

8. Comments. 50X1-HUM

In the design of the R 10 every care was taken to design components and details of the assembly with a view to ease of production in the future; it was found possible to reduce the numbers of components for the R 10 design as compared with the A4 design (for example the line valves from about 40 to 10).

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9. R 10 Conference.

The December 1948 Conference at NII 88 consisted of Scientific and Technical Council and other observers. The total number of Russians present was 60-70, of whom 20 had voting rights. These included academicians, members of the Russian Air Force, military personnel and representatives from TsAGI. KOROLOV was present.

10. Parallel Russian Development to R10

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there is an independant Russian parallel development in progress under the direction of KOROLOV the KOROLOV project. 50X1-HUM

(Note:- Hereafter, this will be referred to as the K.1. project). this too is based originally on the A4 but with increased length and additional tankage. It is supposed to have a range of 800-850 Km (less than the R10). 50X1-HUM

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11. Indications of Development and Production

there may be production of the R 10 or the K.1. projects now. This information is not yet fully substantiated. It is stated that in 1950 the Russians approached the Germans at OSTASHKOV with a request for information on a special weld on the R 10 body. Further, a firing of some missile, directed by KOROLOV, had 50X1-HUM

taken place but the results were not 100 per cent successful. In 1950 or 1951 MIZKEWITCH, leader of the OSTASHKOV test stand group and another Russian left the Island for some six months. Previously full scale R 10 combustion chambers had been modified for gas bleeding and the test equipment provided "fitted" on the KAPUSTIN YAR Test Stand. This equipment had been dispatched, presumably to KAPUSTIN YAR. The Russians on their return stated that the gas bleeding tests had been successful but did not admit they had been to KAPUSTIN YAR.

[redacted] the main structure assembly line (for the A4) from MITTELWERK was rebuilt and demonstrated at NII 88 and "dispatched beyond the Urals" (Note:- This may or may not be supporting evidence of R 10 or K.1. project production).

12. Conception and Study. - R.14

Ten advance proposals were considered as a result of a demand from USTINOV in the Spring of 1949, for a missile capable of carrying a useful load of 3,000 Kg to 3,000 Km. No dimensional conditions were laid down and preliminary answers were required in three months. Of these ten proposals, five were first selected, of which two projects were chosen for a detailed study. These were a ram jet project R 15 (reference paragraph 15) and a single stage ballistic rocket, the R 14. The R 14 design study was completed in December, 1949 and submitted to MOSCOW. The report comprised sections on Ballistics, Aerodynamics, Control, Ground equipment, Body and Statics, Power Plant calculations, and Stability investigations to a total of 1600 pages, together with 150 drawings and 80 posters. [redacted] no meeting took place at which Germans were present, and [redacted] although "brilliant in conception", it will be too great a technical advance to appeal to the Russians.

[redacted]

14. [redacted] the paper study of an underground Assembly factory combined with an operational underground firing point, the rocket being fired upwards through a vertical shaft. [redacted] road transport will subject any rocket to unnecessary stresses and [redacted] with a range of several 1000 Km, it was pointless to run the risk of damage for the sake of a few 100 Km change in firing position. The Russians however insisted on road transport as an alternative.

15. R.15

The alternative solution to the long-range weapon problem of carrying 3,000 kg to 3,000 km was pursued with small effort chiefly by ALBRING and CONRAD who worked on this spasmodically without much support. They proposed a ram jet "glider" to be initially boosted by an A4 motor which was to be jettisoned after rocket fuel cut off. Although initially it had been proposed by KLOSE (now dead) to fly the glider at 30 km altitude, it finally was designed by ALBRING to fly at 14 km height at a speed of Mach. 2. It was proposed to construct the ram jet using Ju 004 combustion chambers?! It was to be stabilised by gyros and controlled by long-distance directional radio. There was no conference at the end of the study, and only a collection of separate reports on various aspects, together with some 200 drawings were produced.

[redacted]

16. Parallel Russian Development.

[redacted] there is a second KOROLOV project in line with the R 15. It is stated to have a range of 2,500 km, this being less than the R 15, but so far no evidence is offered to support this.

When the group re-organised in 1951 to work on non-military problems, two tasks were allocated in the Autumn of 1952 which were of a

[redacted] Enclosure

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military character. One was the design of a Stathoscope, i.e. an instrument for maintaining constant barometric height, (the design height has been stated to be at 14 km.) and a gyro system following the 84 minute pendulum conception. These two instruments may or may not be associated with the R 15 or the long-range KOROLOV project.

17. SANGER Project

[redacted] 50X1-HUM

[redacted] in 1947 the SANGER report was sent to OSTASHKOV for further study and comment.

[redacted] 50X1-HUM

Ground to Air Rockets

(a) Wasserfall

[redacted] 50X1-HUM

a number of these rockets had been fired. Production plans were drawn up by MENDE [redacted] and another comparatively inexperienced production engineer during 1947 at NII. 88. 50X1-HUM

(b) Un-named Project 50X1-HUM

One project was worked upon by HOCH and ALBRING. It was designated under the general Russian name 'ZENITH' [redacted] 50X1-HUM

[redacted] it had no " 'R' number". [redacted] considered [redacted] to be very complicated in control. It had two wings [redacted] considered [redacted] to be unimportant. [redacted]

[redacted] The work was finished and the Russians vouchsafed no opinion [redacted] on the project [redacted]

[redacted] 50X1-HUM

(c) Other Projects

Some elementary work on the RHEINTOCHTER, SCHMETTERLING, TAIFUN was carried out on the island by the HOCH/ALBRING Groups. [redacted] 50X1-HUM

Organisation of G.W. Programme

Directly under the "Supreme Soviet" was an overiding committee with GAIDUKOV as chairman (1947). Research work was distributed to various universities and the main organisation was the Ministry of Armaments, in which the 7th Principal Section under SPIRIDOV was the Rocket Section. Other Ministries concerned were:-

Ministry of Communications	Electrical and Control Equipment
Air Ministry	Power Plants Aerodynamics, through TSAGI.
Ministry of Agricultural Machinery and Transport.	Gyros.

ZAGORSK:

[redacted] 50X1-HUM

[redacted] Testing of Combustion Chambers as well as Turbo Pumps and complete propulsion units were planned.

Actual progress of the scheme was kept secret [redacted] 50X1-HUM

[redacted]

A possible pointer is the fact that SUCHOMLINOFF who for years was director of the Filiale (island) was transferred to ZAGORSK in 1952.

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This is located near Factory No. 456 KHIMKI and close to the factory accommodation area, near the WASSERBAHNHOF. The accommodation is built into the Institute proper and both are new buildings.